ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. VII. MAY, 1896. No. 5.

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THE FELDMAN COLLECTING SOCIAL.

(See Plate V.)

An evidence of advancing interest in the study of insects is indicated in the fact that Philadelphia, which may well be called the home of American Entomology, sustains two entomological societies, namely, the American Entomological Society and the Feldman Collecting Social. The former society now works in conjunction with the Academy of Natural Sciences of Philadelphia, having rooms in the building of the Academy, and was organized in 1859. It is not the writer's intention, however, to deal with this society, other than by way of comparison, in order to show that the more recent organization is not intended to work inharmoniously with the older, but was formed to stimulate a social acquaintanceship among the collectors of Philadelphia without eliminating the advancement of their study. Sociality and the advancement of natural science were to be promoted hand in hand, neither to be sacrificed to the other.

While the members of the Feldman Collecting Social recognize fully the worth of the American Entomological Society, and are proud of its prestige in the entomological world, many of them being members of it, yet it long ago became apparent to

the younger entomologists of Philadelphia that there was still room for another society having for its object the fostering of social features which they seemed to recognize would not be in keeping with the dignity of a society of world-wide reputation.

In December, 1887, a call was sent to the local workers, inviting them to be present at the residence of Mr. Henry W. Wenzel, 1115 Moore Street, on the evening of the 26th instant, to discuss plans of organization. The invitation met with a generous response, and a temporary organization was made, a committee consisting of Messrs. D. M. Castle, H. W. Wenzel and C. E. Seeber, being appointed to formulate a constitution, by-laws, etc., and to report at a meeting to be held on Jan. 10, 1888. At this meeting the committee's report was accepted, and a permanent organization effected and called the Feldman Collecting Social, the following persons constituting the original members: J. H. B. Bland, D. M. Castle, H. W. Wenzel, Edw. Wenzel, Frank Hoyer, Albert Hoyer, C. E. Seeber, Chas. Steiger, Philip Laurent and Chas. Liebeck. It was intended that the society should have a broad scope, its aims being restricted to no particular subject, but, on the contrary, the meetings were to be "free and open to the discussion of all branches of natural science." In late years, however, its scientific transactions have been almost entirely entomological, owing to the fact that all its present members are interested to a greater or lesser degree in that study. Active membership is restricted to fifteen, and there is at present but one vacancy. Three honorary members are on the roll.

Meetings are held on the second Tuesday of each month, excepting July and August, and the interest felt in the meeting by the members is evinced by a full attendance at almost every meeting. The verbal communications are, as a rule, local in character, such as reports of captures and exhibition of specimens, but matters more technical and results of systematic work are not infrequently given. Much information is acquired by the members from the general discussion that invariably follows a communication, and adjournment is to "the annex," so-called because it is an after-attachment to the meeting. For the benefit of non-members, "the annex" means a collation.

The Feldman Collecting Social is so-called in honor of Henry Feldman, a one-time prominent Philadelphia collector, who

worked contemporaneously with LeConte, Ridings, Newman and others whose names are familiar to the entomologists of to-day as belonging to men who, in spite of public prejudice and accompanying adversities, bravely adhered to their favorite pursuit, and who were really the pioneers of Entomology in America. Mr. Feldman was born in Celle, Hanover, Germany, in 1814, and came to the United States at an early age, where he carried on his entomological endeavors, and at the time of his death had accumulated a large collection of Coleoptera, which were his favorites. He died Nov. 12, 1887.—F.

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NOTES ON EUROPEAN ENTOMOLOGICAL COLLECTIONS.

By PHILIP P. CALVERT.

(See the NEWS for January, 1896, p. 4.)

V.—BERLIN.

The entomological collections of the Royal Frederic William (Königliche Friedrich-Wilhelm) University in Berlin are contained in the Museum für Naturkunde, Invalidenstrasse 43, in the same extensive building with the Zoological and Paleontological collections and the Zoological Institute. The Director of the zoological collection is Prof. Karl Möbius. The entomological staff consists of Dr. Ferdinand Karsch (Orthoptera, Odonata, Hemiptera, Lepidoptera), H. J. Kolbe (Coleoptera, Neuroptera), Dr. H. Stadelmann (Myriapoda, Arachnida, Hymenoptera), Dr. B. Wandolleck (Diptera), Dr. R. Lucas (Hymenoptera), E. W. Rubsaamen (Cecidiæ), and E. Schmidt and M. Ude, preparators.

The collection of Insects forming a part of the "show" collections in Zoology and Paleontology, open freely to the public on three days in the week, is on the ground floor, and consists of a general systematic collection and one of German insects of all orders with the various developmental stages, preparations of insect anatomy, galls and their producers, specimens of insect architecture, two revolving cases for displaying metallic colors of Coleoptera and Lepidoptera, and, in some of the windows, photographic lantern slides of insect parts, and a series of denuded Lepidopterous wings to show venation.

The "study" collections occupy a room 34 x 16 metres (111.5 x 52.5 feet) on the third floor ("zweiter stock" of Ger-

man nomenclature), having the full width of the southern wing of the building and well lighted by a row of windows on each of the two long sides, north and south respectively.

Dr. Karsch, to whom the writer is greatly indebted for the freest use of the collections during a six months' stay in Berlin, has kindly furnished the following data regarding their more important contents:

GENERAL.

The foundation of the collection was that of Graf Hoffmannsegg, purchased in 1818 for 22,000 thales, consisting of 18,504 species and 550,000 specimens.

Ehrenberg's collections from Abyssinia and Egypt.

Charpentier's collection, more especially Orthoptera.

The results of the Royal Prussian Expedition to Eastern Asia in 1860–62, obtained in the Dutch East Indies, China and Japan.

E. P. E. Friedrich Stein's collection of Palæarctic insects, particularly of Orthoptera, Neuroptera, Hemiptera and Hymenoptera.

Dr. Feodor Jagor's collections from the Philippines, Java and Singapore.

Dr. Theophilus Studer's collections made on the voyage of the "Gazella" in the Atlantic Ocean, Kerguelen Land, the west coast of Australia and Magellan's Straits.

Dr. Franz Hilgendorf's collections from Japan.

Dr. Peter's collections from East Africa.

Dr. Rosenhauer's biological collection of larvæ, pupæ and the objects serving the former as food, the insects mainly raised by Rosenhauer himself.

Types from all orders described by Klug, by Gerstaecker up to the time of his removal to Greifswald in 1877, and by Dr. Karsch.

North American species in all the orders are not numerous. Of late years the African collections have increased greatly in consequence of the activity of explorers in the German possessions.

COLEOPTERA.

Types described by Schaum, Erichson, Harold and others.

Haag Rutenberg's types, especially Tenebrionidæ.

LEPIDOPTERA.

Collections of Maassen, of Herman Davids (including many African types), of Stübel (especially from Colombia, studied by Maassen and Weymer).

Types of Plötz in Hesperidæ, of Staudinger, of Aurivillius and others.

The older collections of Lepidoptera were determined by Hopfer, first curator for Lepidoptera.

OTHER ORDERS.

H. Loew's collection, with the exception of the North American species.

Beren's European Hemiptera-Heteroptera.

Klug's Arachnida.

Types of Orthoptera described by Schaum.

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A NEW AFRICAN SATURNIID.

By W. J. Holland, Ph.D., F. Z. S., etc.

I have just received a beautiful collection of African Lepidoptera collected by the late Dr. A. C. Good during the last months of his life in the interior of the Cameroons at Efulen, a mission station founded by him among the Bule tribe, about one hundred and twenty-five miles inland from the Great Batanga. While there are very few diurnal Lepidoptera which have not been hitherto described, there are a number of moths, some of them bred specimens, which are apparently new to science. One of them, reared as Dr. Good tells me from a chrysalis found by him, is a most remarkably beautiful insect, which I am unable to refer to any genus or species catalogued by Kirby or mentioned in the "Zoological Record" since that list was published. I believe it to be new to science, and I take pleasure in dedicating the genus, which I propose to found upon it, to my honored friend, Mr. Andrew Carnegie, whose recent gift of a million of dollars, the income therefrom to be annually expended in the purchase of works of art and collections for the Art Gallery and Museum, which he has founded in the city of Pittsburgh, well entitles him to be regarded as one of the foremost promoters of science in this country.

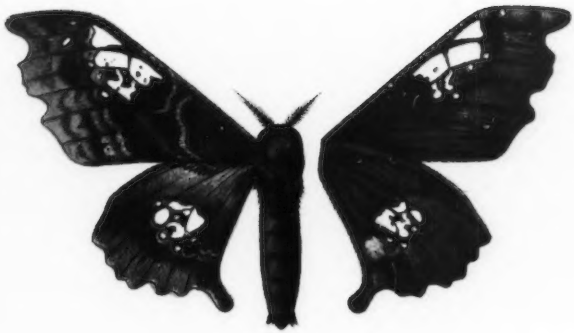
Family SATURNIIDÆ.

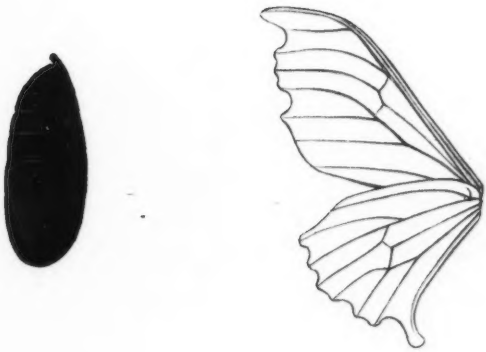
Genus **CARNEGIA.**

Somewhat allied to genus *Teratopteris* Hübner, and to *Holocera* Felder.

♀.—Body robust, anal extremity a trifle longer than the anal angle of the secondaries. Antennæ short, not longer than the width of the thorax, finely pectinated at the base, setose at the extremity. Legs short, tibiæ clothed with short, closely appressed hairs. The primaries have the costa straight for three-fourths of their length from the base, then abruptly rounding and continued to the outer angle by a straight line parallel to the line of the inner margin. The outer angle is strongly produced, giving the wing a strongly falcate appearance, which is increased by a deep excavation of the outer margin just below the outer angle. A similar deep excavation occurs on the outer margin between the extremities of veins 3 and 4. The inner margin is approximately straight, but projects downwardly over the secondaries by a broad tooth beyond the base. The secondaries have the costal margin curved to near the extremity of vein 8. The outer angle is slightly excavated; the outer margin is irregularly crenulate, deeply excavated between veins 3 and 4. At the anal angle there is a long, somewhat narrow tail-like projection directed inwardly. The inner margin is straight for the greater part of its length, curving inwardly rapidly as it approaches the anal angle. The cells in both wings are bisected by a fine nervule running from the discocellulars to the base. The wings are ornamented by a number of irregular, translucent, scaleless patches, distributed about the ends of the cell. Type *Carnegia mirabilis* Holland.

Carnegia mirabilis n. sp. (Plate VI) ♀.—Antennæ fulvous. Body above and below dark brown, slightly paler beneath. Legs concolorous, tarsi annulated with pale gray. The primaries are ornamented with eight or nine diaphanous spots located at the end of the cell on either side of the discocellulars, five of which are large, the others small. Of the large spots, one is subtriangular, lying just below the costa between the origins of veins 6 and 7. Below this, between veins 5 and 6, is a large oblong spot, separated by the discocellulars from an equally large spot located at the extremity of the cell. The inner outline of this introcellular spot is irregular. Below these two large spots are two unciform spots, with their small ends directed upwardly, one without the discocellulars between veins 4 and 5, the other within the cell. Between veins 3 and 4 near their





CARNEGIA MIRABILIS.

J. Holland, del.

Ketterlinus-Phila., N.Y. & Chicago.

origin below the outer angle of the cell is a small round spot, and on either side of vein 5 near the lower outer angle of the large, oblong, quadrate spot are two similar round, small spots. Beyond the subtriangular spot near the costa is a small, round, translucent point. The base of the primaries is dark brown, the brown tract being defined externally by a twice curved paler violaceous line, beyond which there is a very irregularly dark violaceous band defined externally by a pale line exceedingly irregular in shape and closing in its upper portion a dark maroon-brown spot, which bounds the translucent spots at the end of the cell on their inner margin, and is continued downwardly across the middle of the wing to the inner marging, widening toward the inner margin. This dark fascia of rich brown is succeeded by two crenulate and irregular pale discal bands, separated by a darker brown line between them, the outer one accentuated by some dark brown patches between veins 1 and 3 and veins 4 and 6. The outer portion of the wing beyond these lines is pale wood-brown marked with some obscure submarginal acuminate brown cloudings. There is a subtriangular dark brown spot on the costal margin just before the apex. On the underside the primaries are plain, the transverse bands and lines and dark markings of the upper surface being obsolete for the most part; the secondaries have the costal region near the base pale brown, the outer margins laved with purplish brown, the middle area, especially toward the inner margin, dark maroon-brown, interrupted by the translucent spots clustered about the end of the cell. Of these spots there are ten, four of them large, the others small and circular. From this cluster of spots there runs inwardly to the inner margin a geminate pale greenish waved line. The underside of the secondaries is plainly colored like the primaries, being dark wood-brown with lighter reddish markings about the translucent spots, as is also the case to some extent on the primaries. Expanse 85 mm.

DURING a biological trip to the Dismal Swamp in October, 1895, I was impressed by the great numbers of Carabid beetles (*Carabus vinctus*) which swarmed everywhere in the vicinity of the shores of Lake Drummond. That which interested me most about them was a food habit I had not before noticed. All kinds of refuse animal matter, whether from fish, flesh or fowl, was attacked and greedily devoured by these voracious insects. As many as a dozen were seen feeding about an old fish head, or grouped around a bit of fresh skin or muscle. I soon found though that they were not an unmixed blessing, because small mammals left in the traps long after sunrise were certain to be more or less damaged. Some specimens were so badly mutilated that only the skulls could be saved. Never before have I seen them feeding on anything except insects which they had captured.—W. K. FISHER.

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), in charge of the joint publication committees of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, and the American Entomological Society. It will contain not less than 300 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

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☞ All remittances should be addressed to E. T. Cresson, Treasurer, P. O. Box 248, Philadelphia, Pa.; all other communications to the Editors of ENTOMOLOGICAL NEWS, Academy of Natural Sciences, Logan Square, Philadelphia, Pa.

PHILADELPHIA, PA., MAY, 1896.

THE collecting season is opening and nets, cyanide bottles and other apparatus are being prepared for action. Work on the cabinet is postponed until cooler weather and all our interest centres on the insect in the field. There are several things our field workers can do to advance the study of entomology and the opening of the season is a good time to begin. We refer to getting material in good condition and putting dates on paper or pin. Every collector should also have his pin labels containing his name and locality, and should never fail to have his or her specimens properly labeled. The time is coming when an insect will mean more than a name, as many biological studies of interest will be taken up in the near future, and an insect without date or locality will be considered worthless for every purpose other than as an individual of a species. Also remember it is just as easy for a student to study from a faultless specimen as it is from one that looks as though it had been struck by a cyclone.

NOTICE.—The Regents of the N. M. Agricultural College having arranged to dispense with my services after June 30th, correspondents are requested to send me no more insects to determine, as I shall not be able to attend to them.—T. D. A. COCKERELL, Agricultural College, Mesilla Park, N. M.

DEPARTMENT OF EGONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

Transplanting Insects.—The spread of the San José Scale has been alluded to in this department on several occasions, and also the methods of treatment recommended and other details concerning the species. At the last session of the New Jersey Legislature, in response to a request by the State Board of Agriculture, an appropriation of one thousand dollars was made for the purpose of introducing into the State of New Jersey, if possible, such predaceous insects as are proving useful in California to check the increase of this pernicious scale. In the effort to carry out this intent with the best chance of success, the writer will go to California during the early days of May, with the view of studying the habits of the predaceous insects which keep this species in check in that State. Sendings will be made to the East of all species found feeding upon the San José Scale, in all their different stages, to increase the chances of their safe arrival and of becoming used to their new surroundings. To add to the chances of success the coöperation of Prof. P. H. Rolfs, in Florida, and of Mr. L. O. Howard, Entomologist to the U. S. Department of Agriculture, has been secured. Prof. Rolfs has agreed to look after certain colonies of these insects in Florida, and will place them in the regions infested by the scale to the best advantage. Mr. Howard will receive other sendings and will place them in orchards in Virginia or Maryland as seems to him most desirable. In New Jersey there will be from eight to twelve orchards in which the insects will be received and liberated and where they can be watched to the best advantage. It is intended to obtain specimens from as many different localities in California as possible, and particularly to secure them from the most Northern localities at which they occur.

Whatever the outcome, this experiment will be a most interesting one. The climate of the Pacific coast differs so radically from that on the Atlantic that it would seem as if the experiment was foredoomed to failure, yet we can never tell what possibilities of adaptation an insect contains, and it is not at all impossible that some of the species will develop an ability to become completely dormant during the Winter and yet reappear in good condition and ready for work the following season. One of the great drawbacks to our eastern predaceous insects, is the slowness with which they breed. This puts them at a great disadvantage as against species like the San José Scale which has generation after generation during the entire season and where the number of young seemed to be practically unlimited. What is most needed is an insect that will become

active early in May at the latest, if possible even during April, will then feed upon the hibernating scales, produce larvæ which become active before the middle of May, and full fed about the beginning of June. The San José Scale does not begin to reproduce in New Jersey until the first days of June, and if we could get a month of feeding on the hibernating adults by some predaceous species the check would be the most effective possible.

The Grain-feeding Palorus found in the United States.—*Palorus depressus* Fab.—My attention has been called by a paper by Dr. G. C. Champion in the "Entomologist's Monthly Magazine" for February (vol. xxxii, p. 26) to the fact that the *Palorus* occurring in this country and hitherto mentioned by the writer and others as *depressus* Fab. or *melinus* Hbst. resolves itself into two species, viz., *ratzeburgi* and *subdepressus*. The *melinus* of Fabricius, according to Champion, turns out to be a true *Hypophlœus*, therefore not, as stated in the Munich catalogue, synonymous with *depressus*. The latter I have not yet seen, and as it does not seem to be known as an indoor pest perhaps does not occur in America.

Palorus ratzeburgi Wissm.—This is the commonest species found in flour, meal and grain both in this country and abroad. It is of the same size and general appearance as *subdepressus*, but is distinct from that species by the structure of the head and particularly of the eyes. The latter are smaller and more finely granulated, the ventral portion being very much narrower; the sides of the front are only moderately elevated and do not extend backward so as to conceal any portion of the eye and the prothorax is noticeably broadened anteriorly.

I have seen specimens from Detroit, Mich., New York city, Lebanon, Ind., Kansas and Georgia, and have found it in abundance in flour, grain and refuse from bakeries and feed-stores in the District of Columbia.

Palorus subdepressus Woll.—This species lives in granaries in Europe, and is said to have occurred in a shipment of ground nuts at Rouen. It will doubtless in time be found to have similar habits in this country, but at the present writing, so far as I know, has been taken only under bark. Specimens in the National Museum are from Tallahassee, Fla., Texas and Fresno County, California. A single example was taken by Mr. Linell in a pharmacal laboratory at Brooklyn, N. Y., and Mr. Schwarz has a series taken years ago at Washington, but evidence is wanting to show that the species has yet gained a foothold so far north. It is the species observed by the writer at the Columbian Exposition in meal from Brazil.

In this species the sides of the front are strongly reflexed and extend backward concealing the anterior margin of the eye as seen from above and the prothorax is only slightly broader anteriorly.—F. H. CHITTENDEN.

Diabrotica vittata as a Greenhouse Pest.—The depredations of this pest, both adults and larvæ, on Cucurbs of the garden and truck farms is too well known to require explanation. I have known them to appear suddenly and in great numbers in early Spring and attack young cucumber plants growing under glass when this was removed from the plants during

the day. Late in Autumn, after all vines have been killed by the frost, the adults congregate in considerable numbers about the unripe pumpkins and squashes eating holes in them, and I have also found them in October, in woods far from where their favorite food-plants had been cultivated, feeding on the belated flowers of a species of Aster. For myself I have never been able to account for the great numbers of these beetles that appear every season, as if they developed on the roots of Cucurbits alone it would be impossible to secure plants at all.

Dr. Henry Shimer, who first published the life-history of this insect in the "Prairie Farmer" of Aug. 12, 1865, stated that the insect wintered over the pupal stage, but Prof. Riley, in his "Second Missouri Report," p. 66, says that he observed both pupæ and adults Nov. 8, 1869, about vines that he had isolated early in October, and reasoned from this that the species hibernated both as pupæ and adults. This, so far as I am aware, completes our knowledge of the whereabouts and condition of this insect from October until April.

For some time I have been receiving complaints of a worm destroying cucumber plants, growing in greenhouses for the purpose of securing the vegetable for Winter use, but was unable to secure specimens until Dec. 28, 1895, when I visited the infested greenhouses located at Hyde Park, near Cincinnati, Ohio, and identified the depredator. The young cucumber plants were first started in small pots, and grown there until the third leaf began to appear, when they were transplanted in rows in the benches, the soil contained in these having been removed from the surface sod outside during the preceding August. At the time of my examination these young plants were being rapidly destroyed by larvæ varying in size from one-half, or a little less, to two-thirds grown. I took many of them in the very act of gnawing off the tender stems just below the surface of the soil, which caused the plants to fall over and suddenly wither and in one case found a larva that had made its way full length up an amputated stem. A very few adult beetles were observed in the act of feeding on the leaves. The roots of many plants that were large enough to fruit were grooved and scarred in a way to indicate that the *Diabrotica* larvæ had been at work on these also, the effect being to weaken them and prevent fruiting. Altogether the loss caused by these larvæ was very serious, and the owner of the greenhouses quite ready to give up in dispair.

It seems probable that the eggs from which the larvæ observed by me originated, were deposited in the greenhouses by females coming in from without, as in the greenhouse where I observed them destroying young plants, a crop of cucumbers had already been reared since the soil was brought in and this crop only suffered to a slight degree by scarring of the roots, thus indicating, but not by any means proving, that the larvæ came from eggs deposited late in the Fall by females that might have entered after all vines outside had been destroyed by the frost.

F. M. WEBSTER.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

PICTURES for the album of the American Entomological Society have been received from B. L. Cunningham, Fort Klamath, Oregon; Philip P. Calvert.

Mr. Philip Laurent and Dr. D. M. Castle are spending a month in Florida on a collecting tour. We hope they may succeed in getting all they desire in the way of insects.

Mr. Lancaster Thomas and Mr. H. W. Wenzel contemplate a trip to Roan Mountain, Mitchell County, North Carolina. The former will collect Lepidoptera and the latter Coleoptera, especially looking out for *Cychrus*.

Mr. GRAF-KRUSI, of Gais, near St. Gall, Switzerland, has recently sent us a sample of his excellent butterfly net. This is a strong folding net, and is so arranged to fit any size stick. The whole net may be readily carried in the pocket and yet can be put into condition for use in a moment. The netting is made of bolting cloth and is exceedingly strong, and will not tear, and can be used for a long time. These nets are also extremely reasonable in price.

A SPECIMEN of *Hypolimnus misippus* Linn. was taken near Oceanus, Banana River, Florida, Dec. 1, 1895, and is now in my collection. I believe this butterfly has only once before been recorded from Florida.

Mrs. CHAS. B. CORY.

Mr. GEO. W. PECKHAM, 646 Newstead St., Milwaukee, Wis., asks for information on several points:

1. Have you ever seen wasps sting their prey? Is the spider or insect stung in any particular spot, or wherever opportunity offers?

2. In opening nests have you ever noticed whether the insects or spiders stored up were all alive, or whether they were partly dead and in various stages of preservation?

3. Do you know of any solitary wasps that mutilate their prey before storing it? In opening mud-dauber nests I have frequently found some of the spiders all dried up; others dead, but plump; and others still alive.

A NEW USE FOR INSECTS.—Prof. Lester F. Ward recently received a request from Prof. Sargent, of Cambridge, for information as to the Winter appearance of *Salix wardi* Bebb, an interesting willow which occurs on the Potomac flats. He yesterday (March 22, 1896) visited the locality where this willow grows, but was unable, in the absence of leaves, to distinguish it from other willows. After some search he found a few specimens, the leaves of which had been webbed to the twigs by the larva of *Cerura cinerea* Walker. This enabled identification of the plant, and he secured specimen twigs which were forwarded to Prof. Sargent. Prof. Ward was greatly pleased with the result of his trip, and says that he has a new interest in the subject of entomology. The experience suggested to him that doubtless in many cases deciduous plants could be determined in the Winter time by one familiar with the remains of insects specifically affecting such plants, or with their work.—L. O. HOWARD.

THE PAINTED HICKORY BORER.—On March 8th beetles were brought to me by a lady who was mnch afraid that her dwelling might be infested with some terrible household pest. She stated that several beetles had been killed about the house, and even asserted that she had been bitten by one of them. The insects were specimens of the Painted Hickory Borer, *Cyllene pictus* Drury, and their presence in the house in Winter was regarded as a great mystery by the inmates. Upon inquiring if any hickory wood had been brought into the house an affirmative answer was given; and that the wood had lain for some time in a closet to dry. I explained that the larva was a borer of the hickory, that the adults had probably emerged from the wood, and that the insect was never serious as a household pest much to the relief of my friends. According to Packard* the adult usually emerges in June out of doors; and that this species attacks the black walnut and butternut as well as the hickory.—W. E. BRITTON, New Haven, Conn.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

Under the above head it is intended to note such papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology, unless monographs, or containing descriptions of new genera, will not be noted. Contributions to the anatomy of insects, however, whether relating to American or exotic species will be recorded.

1. JAHRESHEFT DES NATURWISSENSCHAFTLICHEN VEREINS, TRENCSEN, 1894-95.—New African and Australian Orthoptera, C. Brancsik.

* Fifth Report U. S. Entomological Commission on Forest Insects, p. 287.

2. TERMESZETRAJZI FUZETEK, xix, 1.—New magnificent species of Hymenoptera in the collection of the Hungarian National Museum, A. Mocsary. Monograph of the bee genus *Ceratina* (Latr.) (Palæarctic species), H. Friese.

3. ZOOLOGISCHER ANZEIGER, No. 497.—Geophilidæ and Scolopendridæ from Portugal, and table of the European species of *Geophilus*, C. Verhoeff.

4. ZEITSCHRIFT FUR WISSENSCHAFTLICHE ZOOLOGIE, lxi, 2.—On the post-embryonal development of the efferent ducts and the auxiliary glands of the male sexual apparatus of *Bombyx mori*, E. Verson and E. Bisson.

5. PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY, No. 149.—On *Apatela*, A. R. Grote. The Hypenoid moths and allied groups, ibid.

6. BIOLOGIA CENTRALI-AMERICANA, Zoology, Pt. 126.—Chilopoda, pp. 1–24, pls. 1, 2, R. I. Pocock. Coleoptera, vol. iii, pt. 1, pp. 401–440, pls. 18, 19 (Elateridæ), G. C. Champion. Coleoptera, vol. iv, pt. 6, pp. 81–96 (Scolytidæ), W. F. H. Blandford. Rhynchota Homoptera, vol. ii, pp. 121–128, pl. 8 (*Polyglypta*, etc.), W. W. Fowler. Diptera, vol. ii, pp. 265–272 (Sarcophaginæ), F. M. v. d. Wulp.——Ibid. pt. 127.—Chilopoda, pp. 25–40, pl. 3, R. I. Pocock. Coleoptera, vol. iii, pt. 1, pp. 441–472, pl. 20, G. C. Champion. Coleoptera, vol. iv, pt. 6, pp. 97–112, pl. 4, W. F. H. Blandford. Rhyncota Homoptera, vol. ii, pp. 129–136, W. W. Fowler. Diptera, vol. ii, pp. 273–280, pl. 7, F. M. v. d. Wulp.

7. PROCEEDINGS OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 1896, i [Extract].—The bees of the genus *Perdita* F. Smith, T. D. A. Cockerell.

8. ENTOMOLOGISCHE NACHRICHTEN, 1895, H. 22.—Aethiopische Heterocera, i, F. Karsch.

9. FLORIDA AGRICULTURAL EXPERIMENT STATION, Bulletin 34.—Insect enemies of truck and garden crops, A. L. Quaintance.

10. ANNALS AND MAGAZINE OF NATURAL HISTORY, March, 1896.—Notes on the anatomy of some scorpions, and its bearing on the classification of the order, M. Laurie. Descriptions of five new species of *Castnia* from tropical South America, H. Druce.

11. RECORDS OF THE AUSTRALIAN MUSEUM, ii, 7.—*Stephanocircus* Sk.: a rejoinder, F. Skuse.

12. BOLLETTINO DEI MUSEI DI ZOOLOGIA ED ANATOMIA COMPARATA DELLA R. UNIVERSITA DI TORINO, x, No. 210.—Voyage of Doctor Alfredo Borelli to the Argentine Republic and Paraguay, Opiliones Laniatores, W. Sorensen.——Ibid. No. 219.—Voyage of Doctor Alfredo Borelli to the Argentine Republic and Paraguay, Hemiptera-Heteroptera, A. L.

Montandon.——Ibid. No. 220.—New species of Dytiscidæ collected in Darien by Dr. E. Festa, A. Griffini.——Ibid. No. 224.—A new genus of Tabanidæ collected in Darien by Dr. E. Festa, E. Giglio-Tos.

13. La Naturaleza. Periodico cientifico de la Sociedad Mexicana de Historia Natural (2), ii, 8.—New Mexican species of *Trombidium*, A. Duges.

14. Cicadinen (Hemiptera-Homoptera) von Mittel-Europa von Dr. L. Melichar. 8vo., Berlin, Felix L. Dames, 1896. Price 20 Marks.—This is a volume of 364 pages and 12 well-executed plates. The external anatomy and biology are discussed and directions for collecting and preserving given, as well as the literature and a historical review of the subject. Geographically, the work includes Austro-Hungary, the German Empire and Switzerland. Fieber's division of the Homoptera into eight families is accepted by the author, and the most of those families erected by J. Edwards stand as subfamilies only. Each genus and species is fully described and figured in detail, and keys to the genera and species are not wanting. The synonymy is apparently also very complete. The work is important to Hemipterology, and students of Homoptera will no doubt find it indispensible.—F.

15. U. S. Department of Agriculture, Division of Entomology, Technical Series, No. 2.—The grass and grain joint-worm flies and their allies: a consideration of some North American Phytophagic Eurytominæ, L. O. Howard.——Ibid. No. 3.—The San José Scale, . . . L. O. Howard and C. L. Marlatt.——Circular No. 14.—The Mexican cotton-ball weevil, L. O. Howard. Ibid.—General work against insects which defoliate shade trees in cities and towns, L. O. Howard.

16. Twenty-sixth Annual Report of the Entomological Society of Ontario, 1895.—Insects injurious of the year 1895, J. Fletcher. The growth of the wings of a Luna moth, J. A. Moffat. Observations on the season of 1895, ibid. Variation, with special reference to insects, ibid. Some Winter insects from swamp moss, W. H. Harrington. Birds as protectors of orchards, E. H. Forbush. The Rocky Mountain locust and its allies in Canada, S. H. Scudder. Seventh Annual Meeting of the Association of Economic Entomologist (these papers were previously noted in these columns).

17. Hatch Experiment Station of the Massachusetts Agricultural College, Bulletin No. 36.—The imported elm-leaf beetle; Maple Pseudococcus; Abbot Sphinx; San José Scale, R. A. Cooley.

18. The Entomologist, April, 1896.—*Periplaneta australasiæ* and *P. americana* (illustrations), W. J. Lucas. Meteorological and other conditions influencing the appearance of moths, B. N. Menshootkin. New experiments on the seasonal dimorphism of Lepidoptera, A. Weismann (translated from the German by W. E. Nicholson). *Irrorhotides:* a new genus of Ateuchidæ, . . . J. W. Shipp. Collecting in New England, W. F. Fiske.

19. JOURNAL OF THE NEW YORK ENTOMOLOGICAL SOCIETY, March, 1896.—The life-histories of the New York slug-caterpillars, ii, H. G. Dyar and E. L. Morton. Synopsis of the species of *Nysson* inhabiting America, North of Mexico, W. J. Fox. Some notes on locust stridulation, A. P. Morse. Both sides of butterflies, ibid. A new *Gloveria*, H. G. Dyar. Literature on defensive or repugnatorial glands of insects, A. S. Packard. Preliminary handbook of the Coleoptera of Northeastern North America, H. F. Wickham.

20. DELAWARE COLLEGE AGRICULTURAL EXPERIMENT STATION, Bulletin No. 30.—The San José scale, M. H. Beckwith. Present status of the San José scale in Delaware, ibid. Status of the San José scale in the United States, ibid.

21. ILLUSTRIERTE WOCHENSCHRIFT FUR ENTOMOLOGIE, Jhg. 1, No. 1.—A new classification of the Muscidæ based on the bristles of the thorax and the segmentation of the abdomen, E. Girschna-Torgau.

22. PSYCHE, a journal of entomology, April, 1896.—The New England Melanopli, S. H. Scudder. On Coleoptera found with ants (third paper), H. F. Wickham. New Homoptera received from the New Mexico Agricultural Experiment Station, ii (cont.), C. F. Baker. New species of *Prosapis*, T. D. A. Cockerell.

23. Report of the Entomological Department of the New Jersey Agricultural College Experiment Station for 1895, by John B. Smith (contains numerous articles relating principally to economic entomology).

24. THE AMERICAN NATURALIST, April, 1896.—The segmental sclerites of *Spirobolus*, O. F. Cook.

25. LE NATURALISTE CANADIEN, March, 1896.—Lepidoptera of Sherbrooke and vicinity (cont.), L'Abbé P. A. Begin.

26. THE CANADIAN ENTOMOLOGIST, April, 1896.—A contribution to the knowledge of North American Syrphidæ, W. D. Hunter. *Pieris rapæ* and *Agraulis vanillæ*, W. G. Wright. On the position of the genus *Demas*, H. G. Dyar. Some *Argynnids* of Park City, Utah, A. J. Snyder. Luna eggs—a correction, W. H. Harrington. A Canadian *Trigonalys*, ibid. *Ithycerus novaboracensis* Forst., ibid. *Aidos* Hübner = *Brachycodion* Dyar, H. G. Dyar (no title). Notes on New Mexico and Arizona Hymenoptera, C. H. T. Townsend.

27. NOVA ACTA ACADEMIAE Cæsareae Leopoldino-Carolinae Germanicae Naturae Curiosorum (Verhandlungen der Kaiserlichen Leopoldinischen Carolinischen Deutschen Akademie der Naturforscher), Halle, 62er Bd.—Revision of the genus *Chilosia* Meigen, Th. Becker. Ibid., 64er Bd.—Systematic revision of the Geometridæ of the northern temperate zone, Part 7, C. v. Gumppenberg.

28. REISEN IM ARCHIPEL DER PHILIPPINEN von Dr. C. Semper, 2er Theil, vi, Bd., 1 L.—Moths, G. Semper.

29. LEPIDOPTERA INDICA, F. Moore, pt. 24.—This part concludes volume ii, and includes part of the group Charaxina of the Nymphalinæ. Plates 181–190.

30. PROCEEDINGS OF THE CALIFORNIA ACADEMY OF SCIENCES (2), v, pt. 2.—Mexican Formicidæ, T. Pergande.

31. TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1896, pt. 1.—On the heteromerous Coleoptera of St. Vincent, Grenada, and the Grenadines, G. C. Champion. New and little-known Palæarctic Perlidæ, K. J. Morton. On the relation of mimetic patterns to the original form, F. A. Dixey. The rhynchophorous Coleoptera of Japan, pt. iv, D. Sharp. Notes on flower-haunting Diptera, G. F. Scott-Elliot.

32. NOVITATES ZOOLOGICÆ, iii, No. 1.—Lampyridæ captured in Paraguay by Dr. Bohls, E. Olivier. Notes on Heterocera, with descriptions of new genera and species, W. Rothschild and K. Jordan.

33. British Moths. By J. W. Tutt, F. E. S. George Routlege & Sons, publishers, London and New York. This is an elementary treatise on the moths of Great Britain and contains 508 pages, 12 colored plates and numerous wood cuts. This is a book appealing to the beginner, and presents the subject up to date. The colored figures are crude, but answer the purpose. Most of our entomological works are too expensive and prohibitive thereby to the young naturalist. The author says in the preface: "In spite of the large number of books relating to British moths that have been published in recent years, it yet remains a serious but undoubted fact that there are only two completed books in which even the species are correctly named. It is with the intention of pointing out to young collectors and students the present condition of entomological science that these pages have been penned. The lines of classification adopted are those of the most recent authorities on the subject, and are based on evolutionary lines." We have no such work as this on American moths, and while it does not treat of American species, yet it would be useful in every other way to the student on this side of the water.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper is published; * denotes that the paper in question contains descriptions of new North American forms.

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Doings of Societies.

PHILADELPHIA, April 14, 1896.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, 1509 S. 13th Street. Members present: Messrs. Bland, H. W. Wenzel, Johnson, Trescher, Boerner, Seiss, Fox, Schmitz, E. Wenzel, Griffith and Haimbach. Honorary members: Drs. Geo. H. Horn, Henry Skinner and John B. Smith. Visitors: Mr. Lancaster Thomas, Dr. W. E. Hughes, Prof. Frederick Prime and Edwin Bischoff, of Newark, N. J. Meeting called to order at 9 P. M., President Bland presiding. Written communications were received from Dr. D. M. Castle from Savannah, Ga., and from Mr. Philip Laurent from Wildin, N. C.; these two members being on a col-

lecting trip through the South, Gulf Hammock, Fla., being the terminus.

Dr. Hughes spoke to the members in reference to dust proof cabinets, recommending them to those who needed new ones; the ones referred to are made of sheet-iron, the grooves for the drawers being so arranged as to make them interchangeable and put together so as to make them absolutely dust proof and air tight. The doctor considered it an ideal case for the preservation of specimens, it having been found so, especially for ornithological specimens.

Dr. Horn spoke of his progress in the study of Oedermeridæ, stating that there was no longer a doubt but that the two species at present called *Calopus* must be separated, *angustus* belonging to the genus as typified by *serraticornis* of Europe. The other species, *aspersus*, may be placed in *Sparidrus*, there being no discoverable characters to separate it as they are now published.

Dr. Skinner read a paper on the variation in the Lepidoptera.

Prof. Prime, who occupies the chair of Natural History at Girard College, addressed the members to find if any of them would be willing to furnish him with a few specimens of different orders, it being his object to obtain a collection for the purpose of interesting and teaching the boys at the College in Entomology,

Mr. Fox presented a box of cocoons of *Oiketicus townsendi* which he had received from Mr. Cockerell for distribution among the members who desired them; those who accepted the cocoons desired Mr. Fox to thank Mr. Cockerell for his donation.

Mr. Johnson spoke of those Diptera that have their eyes pedunculate, including the genera *Diopsis*, *Sphyracephala*, *Plagiocephala* and *Achias*. The different forms and position of the antennæ were referred to also their distribution.

Specimens of *Sphyracephala brevicornis* Say from Natrona, Pa., and *Diopsis* sp. from eastern Africa were shown.

Prof. Smith moved that a committee be appointed to communicate with the committees from other societies to arrange the minor details for the 4th of July field meeting at Newark. The president appointed the following committee of three: Dr. Griffith, Mr. Fox and Mr. Johnson.

Dr. Dixon president of the Academy of Natural Sciences, of Philadelphia, sent word to the members of the Social, asking if they would be willing to provide a local collection for the use of

the Academy, he agreeing to furnish all the boxes needed for this purpose. The members readily accepted this proposition, and were advised to collect all orders and to mark the dates and localities on all such specimens plainly.

Prof. Smith presented each of the members with a copy of his annual report.

No further business being presented the meeting adjourned to the annex at 11 P. M.

THEO. H. SCHMITZ, *Secretary.*

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

MARCH 26, 1896.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Dr. Horn stated that he had recently received a letter from Mr. Champion in relation to the synonymy of some Elateridæ found in our fauna and in Mexico, more particularly in regard to the prosternum of *Ludius*. The speaker stated that a Lower Californian form had a differently shaped prosternum from that found in the other members of the genus, and that the mesosternum was more protuberant. This will probably be referred to *Probothrium* notwithstanding the fact that *texanus* and the other form are almost exactly alike otherwise. Mr. Welles exhibited specimens of the peculiar larva of *Harrisimemna trisignata* as well as the pupa, perfect insects and lilac branches showing borings in the wood. The larvæ, when full grown, bore into the solid wood to change into a chrysalis. Mr. C. Few Seiss read a paper on "The Breeding Habits of *Periplaneta orientalis*." On the 20th of April, 1895, one male and three female cockroaches, *Periplaneta orientalis* Linn., were caught and placed in a large shallow jar, in the bottom of which was a layer of garden soil about one inch in thickness. A small box with an aperature or doorway at one end was also provided, which was regularly used by the roaches as a home, dormitory and place of retreat. Throughout their captive lives they were

regularly fed on bits of bread, cheese, crackers, sugar, table scraps, and also supplied with water. On the 31st of July one female died and was found partly devoured; the male died August 15th; the second female August 25th; and the third and last female died September 6th, soon after dropping an egg capsule. The three females during their lives in the jar deposited twenty-five egg-cases (oothecæ); or about eight for each female. As one egg-case contains just sixteen eggs, eight in a row on each side, twenty-five would represent a new generation of four hundred cockroaches in one season of about four and a half months. The first egg-case hatched Nov. 9, 1895, and the second a few days later, but whether these were the first two dropped, viz., May 5th and May 14th I am not positive, but suppose they were. Prof. C. V. Riley says ("The Standard Nat. Hist." vol. ii, p. 171): "The female cockroach carries the egg-case about with her until the young are ready to emerge, when it is dropped." This you will notice does not coincide with my observations. The length of time in which the female carries her egg-case, from the first appearance of the bulb to the moment of dropping, I have never observed to be over five days, and generally only four, but Edw. A. Butler says ("Our Household Insects," London, 1893): "When full, the case protrudes from the end of the abdomen of the female, and is carried about by her in this position for about a week, after which it is dropped into a suitable crevice in a warm situation." On three different occasions I saw the females scoop out a shallow cavity in the loam, using the head and legs in digging; in this the egg-case was deposited and carefully covered up with loose earth. In most instances, however, the egg-cases were dropped promiscuously, with no attempt at concealment. The development of the ootheca or egg-capsule is interesting. It first appears at the tip of the abdomen as a soft hemispherical bulb, of a creamy white color, in marked contrast to the deep brown color of the body. On the second day it becomes oblong and somewhat compressed, and changes to a dull yellow or clay color. It subsequently assumes a dark brown tint, scarcely differing from that of the color of the parent. The sixteen little *Periplanetas* that emerged from the eggs on the 9th of November were delicate in form, semi-transparent, and of a pale amber color. Their eyes were their most conspicuous features, being comparatively very large, and of deep brown

color. As the mothers of these young *Periplanetas* were dead long before they came into the world, it is not probable that the offspring ever receive maternal care or protection.

Mr. Lancaster Thomas exhibited a net frame made of a continuous piece of aluminum wire. The coiled ends of the wire so twisted as to form a threaded arrangement into which a handle might be screwed. It was very inexpensive, costing only fifteen cents. He further stated that he believed a round net frame preferable to one made from material like a clock-spring, as the latter had a tendency to cut off leaves and twigs and thus fill the bottom of the net with débris. Mr. Westcott showed a substitute for cork to be used in boxes or drawers. It is what is known as linoleum, and he believed it to be preferable to cork. Mr. Wenzel suggested that if it would corrode the ends of the pins it would interfere with its usefulness. Dr. Skinner called attention to a material known as *Polyporus betulinus*, a fungus, which could also be used for the same purposes as cork as far as entomology is concerned. Mr. Fox stated that he had been studying the Hymenoptera caught in Northeast Africa by Dr. A. D. Smith, and presented by him to the Academy. There were about ninety species, of which perhaps a half dozen were new to science. Dr. HENRY SKINNER, *Recorder.*

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

PRELIMINARY NOTES ON FIVE NEW SPECIES OF SCALE INSECTS.

By W. G. JOHNSON, University of Illinois, Champaign.

The Elm Chionaspis (*Chionaspis americana*).—This species is very abundant throughout Illinois on white elm (*Ulmus americana*), and as I believe it is a native American insect, I have so named it. It has been very abundant and destructive to shade trees in our cities throughout the State the present season, and is also very common on native timber in central and southern Illinois. The scale of the female is larger and more convex than that of the scurfy bark-louse, *Chionaspis furfurus*, is yellowish brown at first, but becomes lighter with age and exposure; those that remain over Winter shielding the purplish eggs become nearly white by Spring. The male scale is pure white and does

not differ from those characteristic of the genus. There are two broods in this latitude. The young of the first brood begin to appear about the last of April or the first of May, and the second in July. The adult males are peculiar, in the fact there is a winged and a wingless form. The wings in the former are well developed, while in the latter they are represented by mere stubs. The attack is confined usually to the trunk and branches, but the males often cluster on the underside of the leaves. This is a very important pest, from the economic point of view, and is mentioned here in order that entomologists may be on the lookout for it.

The Cherry Aspidiotus (*Aspidiotus forbesi*).—This species is by far the most destructive scale I have yet found in Illinois, and unless its spread is checked I believe it will rival the dreaded San José scale, *Aspidiotus perniciosus* Comstock, in its destruction of fruit trees. It has killed many cherry trees in this State the present season. I have seen this species colonated as thickly on nine-year old trees in this State as ever I saw the San José scale on trees in the Santa Clara Valley, California. I have found it also on currant, apple, plum, peach, pear and honey locust. Cherry, however, seems to be its favorite, and I have therefore proposed the above-mentioned popular name. I have also found it very abundant on native wild cherry in central and southern Illinois, and I am of the opinion that this was its original food-plant. It confines its attack principally to the trunk and larger branches, but is often found on the leaves and fruit. It is pretty generally distributed over this and adjoining States. It approaches *Aspidiotus ancylus* Putnam, but differs from that species in size, color and number of lobes and spinnerets of the last segment of the female. The half matured female hybernates; I believe the species is both oviparous and viviparous, as I have found eggs under scales, and have observed fully developed embryos within the body of the females. The specific name proposed for this insect is in honor of Prof. S. A. Forbes, State Entomologist of Illinois.

The Maple Leaf Aspidiotus (*Aspidiotus comstocki*).—This insect has been very abundant on sugar maple (*Acer saccarhinum*) on Mt. Carmel, Ill., the present year. It attacks the leaves, living in great numbers on the underside, causing yellowish

spots on the upper surface. The spots become more conspicuous as the insects mature, and the leaves fall prematurely. The species is related to *Aspidiotus uvæ*, but is easily distinguished from that insect by its yellowish gray or whitish scale and concolorous exuviæ. The half mature females hybernate under the leaf buds. I have not found this insect on any other tree than maple, and as it attacks the leaves, principally, I have proposed the above popular name. Its specific name is proposed in honor of Prof. J. H. Comstock, of Cornell University, who first instructed me in this most interesting group of insects.

The Elm Aspidiotus (*Aspidiotus ulmi*).—This species has been found on the trunk of white elm (*Ulmus americana*) on the University campus, in rather limited numbers. So far as my observations go it does not attack the branches, twigs or leaves. This scale is not so important, economically, as the preceding species.

The Buckeye Aspidiotus (*Aspidiotus æsculi*).—I found this species very abundant on buckeye (*Aesculus californica*) in Santa Clara County, California, two years ago. It attacks the trunk, branches and smaller twigs, but so far as I have observed the scale, I have never seen it on the leaves. It is a very prolific creature, and often colonates to such an extent as to completely cover the branches. The color of the scale conforms to that of the bark, and where not abundant is difficult to detect.

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TWO DOLICHOPODID GENERA NEW TO AMERICA.

By WILLIAM MORTON WHEELER, Ph.D.

(University of Chicago.)

While looking through a lot of Dolichopodidæ collected during the Summer of 1895, I happened on two species which represent genera that have long been known to occur in Europe, but whose presence in America has not been noted.

Of the first genus, *Xiphandrium*, Loew (Monog. ii, p. 142) believed that he had seen a single female specimen from North America, but it had lost its antennæ, so that he could not be certain of its systematic position. My specimens agree in most respects with the generic characters given by Loew, although the sudden constriction of the long third antennal joint near its base and the long beard of cilia on the inferior orbit might lead one

to make it the type of a new genus. I have refrained from this, however, because the limits of the genera *Porphyrops*, *Rhaphium* and *Xiphandrium* are by no means perfectly definite (Conf. Schiner Fauna Austriaca Diptera i, p. 194) and the founding of a new genus could only add to the confusion. A careful study of the structure of the hypopygium in these genera may give more satisfactory characters, but the small size of the species and the difficulty of obtaining sufficient material will, I fear, delay such a study for some time. Adopting Schiner's definition of the genera *Rhaphium* and *Porphyrops*—he abandons Loew's genus *Xiphandrium*—I am in doubt where to place the American species; I prefer, therefore, to accept Loew's view and to recognize his genus as distinct from the other two.

The second species may be placed without difficulty in Wahlberg's genus *Thinophilus* as defined by Loew (Monog. ii, p. 148–149) and Schiner. According to Loew the male *Thinophilus* has *six*, the female *five* abdominal segments, whereas Schiner says that the abdomen is "in beiden Geschlechtern fimfringlig." The latter author also claims that the first and second abdominal segments are of equal length. Neither of Schiner's characters will apply to the American species, and here, too, I suspect that Loew is the more accurate.

The American *Thinophilus* is remarkable in two respects. First, its occurrence in the Western States and its absence in the Atlantic States—for I can hardly believe that so large and conspicuous a Dolichopodid could have been overlooked in the latter region—is another example of the similarity of the fauna of the Western States to that of Europe. Baron Osten Sacken long ago called attention to this interesting resemblance in the distribution of several insects (see his Western Diptera, p. 351 *et seq.*). A second peculiarity of the American *Thinophilus* is its occurrence in Wyoming, far from the sea-shore or any body of salt water. The European species (*T. flavipes* Zettst., *ruficornis* Haliday and *versutus* Walk.) are described as occurring along the sea-shore. Concerning this interesting difference in the American form, two suggestions may be made: either the species has become adapted to living along the shores of alkali streams and ponds, or it may be actually a salt water species which has its center of distribution in the vicinity of the Great Salt Lake. These are matters for further investigation.

I append descriptions of the two new species:

Xiphandrium americanum n. sp.

Male.—Length 2.5 mm.; length wings 2.25 mm. Slender species; proboscis small, black; palpi rather large, yellow, with several stout black hairs. Face metallic green, with golden reflection, covered with an almost imperceptible layer of white dust. Antennæ black, nearly as long as the head and thorax; first joint slender, without hairs; second joint rounded, transverse, with a few stout black hairs; third joint about two-thirds the breadth of the head, broad at the base, but suddenly narrowing to a long, thin and very gradually tapering apical portion; the whole joint covered with long and distinct gray hairs; the thick and distinctly pubescent arista bent at an angle with the third joint and about one-third its length. Front rather bright metallic green; inferior orbit with a long and conspicuous beard of white cilia. Thorax and scutellum bright metallic green with golden reflection; in some specimens considerably dimmed by a layer of whitish dust; pleuræ metallic green with a layer of light-colored dust; scutellum naked, with only the usual bristles. Abdomen bright metallic green with golden reflection, somewhat darker towards the posterior end; covered with short black hairs; base of the small embedded hypopygium black, the tips of the appendages yellowish or piceous; posterior pair of appendages short and conical, directed at right angles to the long axis of the abdomen, with long and conspicuous hairs; anterior pair of appendages considerably larger, spatulate, less hairy and directed forwards; coxæ black, with whitish dust; fore coxæ with yellow tips and glistening white hairs on their anterior surfaces. Legs plain, covered with short, but distinct black hairs; fore and middle pairs yellow; fore femora with a conspicuous black streak along their outer faces; hind femora black with a metallic greenish tinge, covered with whitish dust and with yellow tips; all the tarsi infuscated from the tips of the first joint. Wings hyaline, distinctly narrower towards their bases; posterior cross-vein distant about one and one-half times its own length from the posterior margin, forming a right angle with the third longitudinal vein; apical segment of the fourth vein perfectly parallel with the third and terminating in the tip of the wing; tegulæ white, with pale cilia; halteres lemon-yellow.

Female.—Length 2 mm.; length of wings 2 mm. Face considerably broader and less brilliantly metallic than in the male, with a thicker layer of pale dust; first and second antennal joints like those of the male; third joint hardly longer than broad, with the same kind of glistening gray hairs as in the male; the apically inserted arista strongly pubescent, much longer than that of the male, being nearly two-thirds the breadth of the head in length and exhibiting the same S-shaped curvature as the elongated third joint of the male antenna. The white beard of cilia on the inferior orbit nearly as conspicuous as in the male; the black stripe on the fore femora less distinct; all the tarsi black from the tip of the first joint. Wing not narrowed at the base; anal angle prominent; posterior cross-vein somewhat further removed from the margin than in the male.

Described from seven males and one female taken in sweepings in the following localities: Milwaukee, Wis., June 26; Chicago, Ill., June 6; Whiting, Ind., July 13.

Thinophilus pectinifer n. sp.

Male.—Length 5.5 mm.; length of wing 5 mm. Proboscis greatly swollen, dark colored, covered with a thick layer of gray dust; palpi very large, flat, of a clear yellow color, with a very delicate layer of silvery dust, and with several prominent black hairs scattered over their surfaces. Face short and broad, its lower border far above the lower edge of the eyes; widening somewhat below; with two transverse wrinkle-like swellings, one near its middle, the other near its lower border; ground color greenish coppery, covered thickly with tawny dust; antennæ small, yellow, the broadly rounded end of the third joint somewhat brownish; arista black; eyes with the white pubescence particularly distinct on their lower portions; cilia of the inferior orbit long and rather dense, yellowish white; front and thorax greenish coppery, covered with a thick layer of rich tawny dust; the thorax with two opaque gray lines down its middle; pleuræ covered with a dense layer of tawny dust; scutellum coppery, somewhat brighter than the thorax. Abdomen with six apparent segments; the first distinctly shorter than the second; the second to sixth subequal; all the segments metallic green with coppery reflection and gray dust, thickest on the sides; whole upper surfaces of abdomen beset rather uniformly with short black hairs; hypopygium black, its embedded base covered with whitish dust; lamellæ directed forward, of uniform thickness, shining black, without dust and with a few weak hairs at their anterior ends; fore coxæ yellow, scarcely infuscated at their extreme bases, with some prominent black hairs on their anterior faces; middle and hind coxæ dark, with white dust and yellow tips. Legs yellow, with black hairs; the short tarsal joints individually blackened at their distal ends; fore tibiæ with an uninterrupted series of black spines along the whole inner face, three prominent black spines at their distal ends and three smaller and equidistant bristles on the middle of their outer faces; first joint of the fore tarsi with a plantar concavity near its proximal end, where there is also a dense cluster of short black spines; extending from the concavity to the distal end of the joint is an uninterrupted series of short stout spines, which gradually increase in length; these spines are inserted at right angles to the long axis of the joint like the teeth of a comb; middle and hind tarsi plain, the latter with the basal joint only one and one-third times as long as the succeeding joint. Wings of uniform breadth and with prominent anal angle; distinctly yellow along the costal region, more grayish towards the apex and posterior margin; veins near the costa yellow, elsewhere brown. The posterior cross-vein, which is twice its length from the posterior margin, is covered with a dark gray or blackish cloud, and there is a distinct spot of the same color on the middle of the apical segment of the fourth vein; this vein shows a very faint curvature,

its tip running parallel with the termination of the third vein; tegulæ white, with glistening white cilia; halteres honey-yellow.

Female.—Length 4–5.5 mm.; length of wings 4.5–5.5 mm. The face is somewhat broader than that of the male; the abdomen, which has only five apparent segments, is broader and flatter. The fore tarsi are plain, the concavity of the first joint, the cluster and series of spines on the plantar surface are much less conspicuous than in the male. The same is true of the three black spines or spurs, at the distal end of the fore tibia.

For the two male and three female specimens from which this description is drawn, I am indebted to Mr. W. A. Snow, who collected them on Old Woman Creek, Wyoming (twelve miles north of Lusk) in July. The five specimens show a considerable variation in the color of the wings and body, some of them being much more yellow than others. There can be no doubt, however, that they all belong to the same species.

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NOTES ON OXYBELUS.—II.

By Carl F. Baker, Fort Collins, Colo.

The species mentioned in this paper possess squamæ having lateral curved points. In all previously known species belonging to this group the spine is emarginate at tip. Three of the new species described herein (*robertsonii*, *varicoloratus* and *hirsutus*) form a new group of this section, having the spine entire at the tip. The new species are all Rocky Mountain forms, taken very near or within the hills. Several of them, like Prof. Cockerell's *cladothricis*, have a much greater extent of rufous on the abdomen than has so far occurred among eastern species.

Oxybelus robertsonii n. sp. ♂.—Vertex and thorax finely, somewhat sparsely punctate, the occiput finely transversely striato-punctate. Prothorax transversely carinate, not sharp angled at sides; mesonotum in front, and scutellum and postscutellum medially carinate; squamæ nearly joining behind, with very large, strong, lateral points but little bent, their tips somewhat exceeding tips of squamæ; spine rather long, narrow at base, towards the truncate tip flat and broadened to twice its width at base, sides of apical third parallel; metathorax with median space long triangular, passing into a short median carina, within transversely striate; above and lateral faces finely transversely rugose; pleuræ transversely striate. Abdomen oval, finely, somewhat sparsely punctate, scarcely constricted between the segments; last two segments coarsely punctate, the apical trapezoidal, truncate at tip; without lateral spines. Color black; pubescence silky, very thick on face, finer and thinner on rest of body;

mandibles piceous for a short distance at middle. Antennæ black, shading into light chocolate towards tips; tegulæ piceous; squamæ at base and spine at tip very pale yellowish; narrow apical margins of abdominal segments 1–5 brilliant silvery, these bands narrowly margined inwardly (basally) with bright fulvous; apical segment piceous. Legs black, anterior tibiæ at base and apex, and all tarsi piceous. Wings hyaline, nervures brown. Length 4.75 mm.

Foothills five miles west of Fort Collins, Colo., August 4th. I dedicate this very distinct species to Mr. Charles Robertson, the author of the "Synopsis of N. A. Oxybelus."

Oxybelus varicoloratus n. sp. ♀.—Head finely closely punctured, occiput somewhat transversely striato-punctate; hind ocelli tending towards the position in *cornutus*. Pronotum with a transverse carina, not angled at sides; mesonotum rather coarsely and closely punctured; mesopleuræ sparsely punctured; scutellum with a weak median carina; squamæ long, narrow, nearly joining behind, with a very strong short lateral tooth, which is not curved and does not exceed the tips of the squamæ; spine very obtusely rounded at the tip, rather short, channeled above, sides nearly parallel; metanotum above and lateral faces striato-punctate; pleuræ transversely striate; the ovate median area convex above within and punctate, concave below and smooth, passing below into a rather long median carina. Abdomen oval, closely, finely punctured, scarcely constricted between the segments; apical segments very coarsely punctured, sides curved and narrowed to a truncate point. Color black; pubescence silky, fine and rather thick all over the body, more so on face and base of metathorax; mandibles piceous at middle; scape black, yellowish at tip beneath, flagellum brown, lighter below; tegulæ and postscutellum yellow; rather broad apical margins of abdominal segments 1–4 silvery, these bands narrowly margined inwardly with yellow, which is interrupted at middle by a spot of rufous; on segments 3–4 the yellow band is very narrowly margined inwardly with rufous; fifth and sixth segments entirely rufous; ventral segments 2–3 with narrow yellow bands. Legs black, fore tibiæ and middle and hind tibiæ at extreme base yellowish rufous; fore tarsi yellow, middle and hind tarsi black at base to light brown at tip. Wings hyaline, veins piceous. Length 6 mm.

Fort Collins, Colo., on flowers of *Solidago canadensis* in Aug.

Oxybelus hirsutus n. sp. ♀.—Nearly related to *varicoloratus*. Differing as follows: pubescence very unusually thick all over body, especially on the head. Pronotum back of carina except spot at middle, tubercles, and spot on either side of scutellum, yellow. The yellow on abdominal segments 1–2, and on ventral segments 2–3, very broad. Abdomen long oval, apical segment triangular, sides straight, tip slightly emarginate. Legs black; middle trochanters beneath at tips and hind coxæ beneath, yellow; fore and hind femora beneath at tips, and middle femora broadly

the whole length beneath, yellow; anterior tibiæ and tarsi yellow, middle and hind tibiæ at base and apex, and the hind tibiæ outwardly yellow; middle and hind tarsi brown at base to sordid white at tips. Length 5.5 mm.

Fort Collins, Colo., August. This species differs from *varicoloratus* as above described. With that species it differs from *robertsonii* in having the last two segments of the abdomen rufous, in having yellow bands on the abdomen back of the silvery bands instead of reddish, in being otherwise much more highly colored, especially on the legs, and in various structural characters as described. By the form of the spine and squamæ, and by the coloration, these three species form a very distinct and conspicuous group.

Oxybelus abdominalis n. sp. ♂.—Head, mesonotum and scutellum, coarsely sparsely punctured, more thickly so on the occiput, and finer on the face. Pronotum with a transverse carina, sides scarcely angled; mesonotum with a median depression posteriorly; scutellum and postscutellum with indistinct median carinæ, the former with lateral margins membranous, the latter alike in structure and half the width of the squamæ; squamæ very large, hemispherical, separated behind, lateral points minute and not exceeding tips of squamæ; spine short, broad, broader at tip, evenly rather deeply emarginate; metanotum above, lateral faces and pleuræ strongly punctato-striate; median area small, triangular, having within three strong transverse carinæ, passing below into a long median carina. Abdomen broad oval, scarcely constricted between the segments, not as coarsely punctured as the mesonotum, rather closely on segments 1–2, more sparsely on 3–5; segments 3–6 with strong, broad, blunt lateral spines; last two segments very coarsely punctured, the apical long trapezoidal, truncate at tip. Color black; pubescence silvery, normal; mandibles yellow, with black tips; scape piceous, yellow at tip, flagellum light brownish yellow; spot on either side of pronotum back of carina, tubercles, tegulæ, membranous margins of scutellum, squamæ and most of spine, whitish or somewhat yellowish white. Abdominal segments 1–4 with apical margins broadly silvery, these bands narrowly edged inwardly with yellow; segments 1–2, most of 5, and 6–7 bright rufous. Legs black; fore and middle femora at tips, fore and middle tibiæ, and hind tibiæ at base, yellow; fore tarsi yellow, middle and hind tarsi more dusky. Length 3.75 mm.

Fort Collins, Colo., on flowers of *Solidago canadensis* in August. This species is very distinct from any described North American form in the membranous margins of the scutellum and coloration of the abdomen. It seems to be more nearly related to *mexicanus* than to any other species. Although there is a

great variation in size, yet the specimens are identical in other respects.

Oxybelus emarginatus Say.

I have numerous specimens of this very variable species from the East and from Colorado. The following, which I find commonly in specimens contained in my collection, may be added to the specific characters given by Robertson. Lateral point of squamæ minute, not exceeding (rarely attaining) tip of squamæ; spine usually somewhat longer than broad, sides gently rounded; metanotum above with strong oblique striæ, reticulate immediately below the spine, with a small, well-defined, triangular area above and joining the large, median, triangular area. Lateral faces closely finely punctate or striato-punctate; median area long triangular, smooth or faintly striate within; metapleuræ finely punctato-striate, sometimes smooth at the middle; last dorsal segment in female short, triangular, very slightly emarginate at tip; last dorsal segment in male short trapezoidal, truncate apically.

O. sparideus Ckll. (Trans. Amer. Ent. Soc. xxii, 292) as it stands at present, is a synonym of *emarginatus*. There is nothing in the description to separate it. In a note below, the description, Mr. Fox says it differs in the form of the spine and coarser puncturing. A detailed drawing of the squamæ and spine of *sparideus* received from Prof. Cockerell, shows the form usual in *emarginatus*. The difference in the puncturing as here exhibited would not alone be sufficient to separate them.

I have found three forms in Colorado, all very closely allied to *emarginatus*, but presenting structural characters which render it impossible for me to unite them at present. I give herewith comparative descriptions of these three forms. Such is the wide divergence in structural characters that I do not believe either *intermedius* or *dilutus* will prove to be the female of *coloradensis*. Material collected by Prof. Cockerell, in New Mexico, and determined by Mr. Fox as *emarginatus*, should probably be referred to one of these forms.

Oxybelus dilutus n. sp.—Differs from *emarginatus* as follows:—Female: mesonotum and scutellum sparsely punctured; squamæ with lateral points large, strong, nearly straight, scarcely equaling tips of squamæ; spine strongly narrowed to the base; metathorax above with oblique striæ, no

reticulations below the spine; median area widely open above, passing into a very short carina below; lateral faces more strongly striate. Length 4.25 mm.

Fort Collins, Colo., August.

Oxybelus intermedius n. sp.—Differs from *emarginatus* as follows:—Female: head and thorax densely, but very coarsely punctured; squamæ with lateral points acute, very large and long, half the length of the whole squamæ and much exceeding the tips; spine narrowed to the base, sides straight, apical third yellowish brown; metathorax above punctate, reticulate below the spine; median area triangular, point attenuate, passing into a very short carina; within smooth at the center, reticulate around the margins. Length 6 mm.

Fort Collins, Colo., August.

Oxybelus coloradensis n. sp.—Differs from *emarginatus* as follows:—Male: position of ocelli tending towards that in *cornutus;* puncturing of the head and thorax as coarse as in *intermedius;* mesonotum in front and behind with a median carina, medially the surface is depressed; postscutellum with two large circular depressions behind on either side, in front of these a median transverse carina; lateral points the squamæ short, strong, blunt, somewhat curved inwardly, but little exceeding the tips of the squamæ; spine much longer than in *emarginatus*, rather strongly narrowed towards the base, apical half yellowish brown; metanotum above with oblique carinæ, reticulate below the spine; median area long triangular, smooth or faintly striate within, extending below into a very short carina; lateral faces rugose. Abdomen more slender than in *emarginatus*, last dorsal segment nearly rectangular; hind tibiæ black, yellowish at base. Length 3.75–4.5 mm.

Fort Collins, Colo., August.

ERRATA.

In article by Dr. Ottolengui, page 126, present volume, one type is credited to Mexico. This should read New Mexico.

ENTOMOLOGICAL NEWS for April was mailed March 31, 1896.